bearing of this abnormal distribution of the pressure on the temperature, winds, and rainfall of this large and important part of the globe was adverted to. In the September following, the U.S. Weather Map for which appears with this notice, great and radical changes in the distribution of pressure took place—such as a change from a large defect from the normal pressure to a large excess above it in the New England States, South Britain, Central Europe, South Africa, and New Zealand; and on the other hand, a change equally striking from a large excess above the normal to a large defect from it over the West India Islands, South Greenland, Iceland, North Britain, and the whole of Southern Asia from the Bay of Bengal to Japan. As it is still premature to speculate on the causes of these enormous changes in the distribution of the mass of the earth's atmosphere and the still more enormous forces called into play in effecting them, we must content ourselves with stating them a little more in detail, and drawing attention to some of the more immediate and striking climatic consequences which followed in their train.

In North America pressure fell most below the normal about Lake Winnipeg, and southwards over the region traversed by the upper tributaries of the Missouri and Platte Rivers. This region of low pressure was extended, though in a less pronounced form, to the south-east, deepening again, however, on approaching Florida, to 0·090 inch, the greatest depression below the normal in the Bahamas. Over the Gulf States and westward through Texas and California, pressure was above the average; and to the north-eastward of the region where pressure was low it rose gradually, till in the Gulf of St. Lawrence it stood at 0·133 inch in excess of the average.

This high pressure extended across the Atlantic, and thence overspread Ireland, England, the northern half of France, Germany, all Russia except the extreme south near the Black Sea, and on into Siberia as far as the valley of the Tobol. As already stated, the southern half of Africa and the whole of New Zealand had a pressure considerably above their normal, the excess in the northern island of New Zealand being about 0·150 inch.

To the north of the European belt of abnormally high pressure there was a widespread region of low pressure including South Greenland, Scotland, Denmark, and Scandinavia, the centre of greatest depression being 0·209 inch below the normal in the north-east of Iceland. On the other side of the European belt of high pressure lay a most extensive stretch of low pressure covering the Spanish peninsula and the rest of Southern Europe; the north of Africa, all Asia, except Siberia to westward of the Tobol River and a small patch including the Lower Amur, the East India Islands, and the whole of Australia. In this widespread region centres of still deeper depression were formed in Italy, the Upper Obi, Western India, Southern China, and the south-eastern division of Australia, the depressions below the normal pressures of these five regions being respectively 0·133 inch, 0·146 inch, 0·084 inch, 0·070 inch, and 0·136 inch. The sharpness with which the regions were marked off will be seen from the statements that in their relations to the normals pressures showed differences of a fall of 0·342 inch from Nova Scotia to Bernfiord in Iceland, 0·329 inch of a rise from Bernfiord to Cork, and 0·153 inch of a fall from Cork to Rome, and 0·290 inch of a rise from near Melbourne to Napier in New Zealand.

In the United States, temperature was under the average on the western side of the area of low pressure, the deficiency from long. 98° W. to the Rocky Mountains being from 1°·5 to 3°·0. This low temperature extended far to northward, the deficiency from the normal amounting to 4°·5 at York Factory, Hudson Bay. In the region of high pressure which overspread the New England States the rainfall was small, and temperature from 1°·5 to 3°·5 above the normal. On advancing, however, to the north-east, temperature fell to near the average in Newfoundland, which lay just on the western outskirts of the great barometric depression which had its centre near the north-east of Iceland. Greenland was completely enveloped in the western division of this depression, and there it will be seen that winds were northerly and easterly, and temperature consequently fell to 4°·0 below the normal. On the other hand, Scotland occupied the south-eastern segment of the barometric depression, and there, consequently, winds were west-south-westerly; temperature was from 1°·0 to 2°·0 above the average; and the rainfall in the west of the country from 40 to 110 per cent. above the average; whereas near the east coast it was about, or rather slightly under, the average. Thus in Scotland the distribution of the rainfall of September was the reverse of what prevailed in August, the weather in the latter month being fine and dry in the west, but wet and backward in the east. These differences of weather were occasioned by the circumstance that in August the centre of greatest barometric depression was to the south-west of Ireland, thus resulting in rain-bringing easterly winds in Scotland with the distribution of the rainfall stated above; whereas in September the centre of the barometric depression was near Iceland, thus resulting in rain-bringing westerly winds in Scotland, and consequently unfavourable weather in the west, but favourable weather in the east for the ingathering of the harvest.

Temperature was about the average in England, slightly under it in France and Western Switzerland, but above the average over the whole of the rest of Europe, and eastward into Asia as far as the area of high pressure extended. The greatest excess of temperature over this extensive region occurred in the great plains of the Danube and the Dnieper, where it amounted to from 4°·0 to 5°·6. In Italy the excess was small, and in Sicily temperature even fell 1°·4 below the average, and this area of low temperature was continued to the north-west through France. Another breadth of low temperature, falling however nowhere lower than 2°·0 below the normal, extended from the Caspian Sea as far to the north-east as the head-waters of the Yenisei, in other words over the western side of the barometric depression which overspread this part of Siberia. To the eastward of the Yenisei temperature was above the average, but only slightly so, nowhere exceeding 2°·0.

The greatest barometric depression in Australia lay off the coast south of Melbourne, and in accordance therewith, keeping in view the law of the winds of the southern hemisphere, the prevailing winds were N.E. and N. at Gabo Island and Melbourne, and N.W. and W. at Sandhurst and Portland; in other words, with the distribution of pressure described, equatorial winds blew over this part of Australia, and the temperature rose at Wilson's Promontory to 3°·2 above the normal; and the winds being land winds, the rainfall, particularly at places in the interior, was considerably below the average. In New Zealand pressure was not only absolutely higher in the north than in the south, but also much higher relatively to the normals, and it was also higher in the west than in the east. Under this distribution of the pressure and the strong equatorial winds resulting therefrom, temperature rose above the normal over the whole of New Zealand, the excess being nearly 4°·0 at Dunedin, Christchurch, and Napier.

NOTES

It was scarcely to be expected that the debate last Friday in the House of Commons on Mr. Roundell's motion for the complete abolition of the clerical headships and fellowships at Oxford and Cambridge should have had any other ending than it had. The Government thought it scarcely fair to the University Commissioners to interfere with what is regarded as one of the points which they are bound to consider. At the same time it is believed that the Commissioners are favourable to the almost complete abolition of clerical tests, and if this is one result of their deliberations, it seems to us their appointment will not have been in vain. The memorial on the subject, with 800 signatures, presented to Mr. Gladstone, could scarcely be more influential. Among the names are those of Sir G. Jessel (Master of the Rolls), Sir Henry Thompson, Dr. Risdon Bennett (President of the Royal College of Physicians), Mr. Darwin, Prof. Huxley, Mr. A. R. Wallace, Dr. W. B. Carpenter, Dr. Abbott, numerous members of Parliament, the Presidents of the Congregational and Baptist Unions and the Dissenting Deputies, the professors of most of the Nonconformist colleges, and several hundred graduates of the Universities of Oxford, Cambridge, London, and Scotland. It seems clear that the days of this remnant of an age of intolerance are numbered, and that in the near future Oxford and Cambridge will be as untrammelled by antiquated restrictions as the London and Victoria Universities. The central institutions of these bodies have developed with a marvellous rapidity, one cause of which, we must believe, has been the perfect liberty of teaching. University College, as we intimated last week, feels urgently the necessity of more elbow-room, and yesterday the foundation of Victoria University was celebrated at Manchester, where Owens College, the nucleus of the University has developed quite as rapidly, at least, as her elder sister of London. When Oxford and Cambridge have been brought as much abreast of the age as the two younger institutions, an impulse will be given to higher education in this country, and an encouragement to research in all departments of learning and science, that in time will bring us on a level with Germany in respect of University education.

No more satisfactory token of the rapid progress of liberal and just ideas as to the proper functions of universities could be desired than the tone of the leading article in the *Times* of Tuesday in connection with the Victoria University ceremonies at Manchester. After giving a melancholy picture of the disastrous effects of the existing system at Oxford and Cambridge, both on crammers and crammed, the *Times* gives what is evidently its ideal picture of university life. "Let us imagine," the leader concludes, "a body of professors employed not in examining or in cramming, but in original research or original work of some sort, pushing forward the bounds of knowledge, adding new ideas to the possessions of the human mind, creating, in short, and not merely appropriating or aiding and testing the appropriations of other people. The stimulus of such work as this would be felt, we may be sure, by all who come in any sense within its range. The example would be contagious. Original workers will be in no want of pupils, whether they seek for them or not. When valuable ore is being dug there will always be some one with a due sense of its worth ready and eager to pick it up. It is for the promotion of such work as this that great funds and great institutions most properly exist. The professions and trades of the country have their own appointed rewards. The successful barrister or the successful merchant may or may not have been a university student. It is not in any case the chief duty of a university to assist him in the attainment of his rank, first to sharpen his tools for him and then to keep him in funds during the interval while he is waiting to use them. The professions and trades can hold their own very well without such adventitious help as this. Original work is not so directly remunerative; to the individual engaged upon it it may not be remunerative at all. It often bears fruit slowly, but it bears it abundantly in the end. It needs, therefore, and justifies the special encouragement which a university can most obviously provide. The Victoria University has its life before it. It can choose its own course. It may become a machine for turning out second and third-rate intelligences, a sort of procrustean bed, so constructed as to bring its sons as nearly as possible to the same intellectual stature and equally to forbid any of them from falling far short of it or from exceeding it. Or it may propose to itself another aim, and may seek principally to aid in the creation of knowledge rather than in its distribution, and even weighing out." We are pleased to find the views we have so long advocated finding acceptance in so influential a quarter, and we commend the article to the earnest consideration of the University Commissioners.

The second annual meeting of the Index Society was held on Friday last, the 9th inst., in the rooms of the Society of Arts, when His Excellency the American Minister, Mr. J. Russell Lowell, presided. The Report contained an account of the work already accomplished and of that which is in hand or can be put in hand when the list of subscriptions is enlarged. Many of the Indexes issued through the Society refer to literature and history matters, but science is not overlooked. A Handbook of the Literature of Botany, by Mr. Daydon Jackson, the secretary of the Linnean Society, is just ready for the press, and a companion volume for meteorology is proposed. Indexes of Logic and Anthropology also find a place in the list of schemes. Besides the formal business at the meeting, resolutions were passed for the appointment of committees to consider the best means of carrying out the following objects:—(1) The indexing of biographical collections, especially those contained in the *Gentleman's Magazine* and the *Annual Register*: (2) the indexing of Roman antiquities and remains in Great Britain; and (3) the opening of an office to contain the printed and MS. indexes.

We have already called attention to the fact that the friends of the late Prof. Alfred Henry Garrod, F.R.S., being desirous of possessing some memorial of him, it has been agreed, after due consideration, that this object will be best effected by the republication in a collected form of all his separate memoirs and papers, both zoological and physiological, prefaced by a biographical notice and portrait of the author. A committee has been formed to carry out this object, consisting of Prof. W. H. Flower, LL.D., F.R.S., P. L. Sclater, Ph.D., F.R.S., Dr. A. Günther, F.R.S., O. Salvin, F.R.S., F. M. Balfour, F.R.S., Prof. E. A. Schäfer, F.R.S., G. E. Dobson, E. R. Alston, Prof. F. Jeffrey Bell, W. A. Forbes, secretary. It is estimated that Prof. Garrod's collected papers will form a volume of about 500 pages, royal octavo, illustrated by twenty-five plates and numerous woodcuts. Each subscriber to the fund will be entitled to receive a copy of the work for every guinea subscribed. Intending subscribers are requested to forward their names, and to state the amount they are willing to subscribe, to the Secretary of the Garrod Memorial Fund, 11, Hanover Square, London, W.

Dr. J. H. Gladstone, F.R.S., has presented 100*l.* to the Research Fund of the Chemical Society.

The French Government has allotted M. Pasteur the sum of 50,000 francs for the purpose of enabling him to carry out his researches on the contagious diseases of animals.

Wishing to devote himself exclusively to scientific pursuits, Admiral Mouchez, director of the Paris Observatory, has asked to be placed on the retirement list, a request which has been granted by the Ministry.

The well-known mathematician, Prof. C. W. Borchardt, died at Rüdersdorf, near Berlin, on June 27. He was formerly Professor of Mathematics in the Military Academy, and of late years Professor in the University of Berlin. Since 1856 he was editor of the *Journal for Pure and Applied Mathematics*, the oldest of the existing mathematical periodicals.

The death is announced, at the age of fifty-seven years, of Dr. Karl Neumann, professor of history and geography in the University of Breslau; his name is well known to students of historical geography.

At the *fête* in Paris yesterday the electric light played a prominent part. It was used to illuminate the fountains of the Tuileries Gardens, the upper part of Notre Dame, the Bourse, the dome of the Panthéon, Porte Saint Denis, and several other public places, besides private buildings. One of the most interesting experiments was that of M. Serrin from the top of his house, facing the Place de la République, where the gas companies organised an unrivalled display. M. Serrin has invented an apparatus which has been already tried with great success, and may be moved in any direction with an amazing velocity. His powerful ray of light describes curves in space visible at an immense distance. Some new forms of regulators were exhibited for the first time on this occasion. The *fête*, being national, was celebrated all over France in the 40,000 communes or townships of the Republic, and the electric light was used in the provinces as well as in Paris. The most notable display was probably at Rouen, where a group of sixteen Siemens lights, of a power of about 100,000 candles, was placed on the top of the spire of the Cathedral.

The several improvements in the National Library of Paris have resulted in a large increase in the number of readers. In 1869, when the new hall was opened, the number of readers was 24,000, who used 71,000 volumes exclusive of the library of reference. In 1879 the number of readers was 63,000, and of volumes used 230,000. It must be added that other libraries are open to the public in Paris and largely frequented, such as the Conservatoire des Arts et Métiers for mechanical science and physics, the Muséum d'Histoire Naturelle for natural history; the Mazarin St. Genevieve, for general purposes; the Sorbonne, École de Droits, École de Médecine, &c., for the general public, as well as for students. Readers are admitted to the National Library reading hall only by tickets; a special room has been opened to the public, and is also largely frequented. The present hall is only provisional, and a new one, on a larger scale will be opened very shortly.

A trial has just been made on the measured mile in Stokes Bay, under the superintendence of the Steam Reserve and in the presence of the Controller of the Navy, of a service steam pinnace propelled by the Mallory screw. This is the first application of the American invention in the English service, and much interest was manifested as to the results of the trial. The propeller, which was fitted to a pinnace constructed specially for the purpose, is capable of being turned to any angle by means of a pinion and gearing, like an ordinary rudder, with which it dispenses. The boiler is stowed away under the forecastle, while the cylinders are placed at the stern and act directly upon the vertical shaft which turns the screw. Six runs were made with the engines going ahead and two with the engines going astern, there being scarcely half a knot's difference in the mean speed realised, 8·828 knots being obtained while going ahead with 339 revolutions, and 8·451 knots going astern with 340 revolutions. The engines were reversed from full speed ahead to full speed astern in ten seconds. But the most remarkable results were obtained in turning, the little craft showing such remarkable handiness that it not only turned in its own length, 42 feet, but was put by Col. Mallory through the movements of a quadrille, chaining, setting to partners, and galloping to places. She made a circle to starboard in thirty-six seconds, and without stopping, made a second circle to port, thus completing the figure 8 in thirty-seven seconds. The trial was deemed satisfactory, but the vibration at the stern was so great that the after part of boats fitted with the Mallory propeller will require to be specially strengthened.

Through the kindness of General Myer we have received some further details concerning the extraordinary memory credited to the man in charge of the hat room at the Fifth Avenue Hotel, New York, referred to in Nature, vol. xxi. p. 562. He is an Irish-American about thirty years of age, Gilmartin by name, and has occupied his present position about a year. His sole duty consists in looking after hats during meal hours. The fact of his possessing a remarkable memory is indisputable, but still he is not looked upon as a prodigy by the hotel officials. They state that a Tommy Hart, now dead, who figured conspicuously in the "Stokes trial," was for a long time in charge of their hat-room, and was this man's superior as regards memory, and cited other instances of men now employed in different hotels throughout the country whom they consider his equals. It is very evident, however, that he possesses a wonderful talent for selecting the right hats, and mistakes are rare with him.

The suggestion made by A. Martin with regard to radiometers (*British Journal of Photography*, July 9, p. 312) is a very obvious one, and has been made dozens of times. We believe that soon after Mr. Crookes commenced working with Becquerel's luminous sulphides he tried to get a radiometer to move by means of the light given out by these bodies after insolation. He used them painted on one side of the vanes of a radiometer, and also as luminous screens outside the radiometer to act on the darkened vanes, but it was all to no purpose. The light evolved was too faint to have any effect. It is just possible that if a room were entirely coated internally with Balmain's luminous paint and excited by sunlight or burning magnesium, a radiometer might revolve in it for a short time, but even this is not likely to occur. The most sensitive radiometer will not turn to a candle more than twelve feet off, and the torsion-balance photometer will only just move to a candle thirty feet off; yet the illumination given by a candle at this distance is far greater than any we have seen produced by the luminous sulphides.

Further accounts of the earthquake in Switzerland on Sunday week prove it to have been one of the most severe and widespread which has happened in Switzerland for several years. It was felt in the Central and Pennine Alps, at Berne, Zurich, Payerne, Andermatt, on the Lake of Lucerne, in the Bernese Oberland, in the cantons of Geneva and Vaud, and doubtless in Savoy. The principal seat of disturbance was in the Valais, in the neighbourhood of Visp and Brieg. In both places the shock was preceded and accompanied by aërial noises and underground detonations. The time of its occurrence is variously stated at 9.20 and 9.30 a.m., and the direction of the movement, so far as can be made out, was from south to north. At Leukerbad the shock is said to have been accompanied by subterranean thunder. Further east, in the neighbourhood of Geneva and Lausanne, the oscillation was perceptible only in the upper rooms of houses near the Lake.

An occurrence, which may be partially or wholly attributable to the rude shakings which Switzerland has recently undergone, is reported by the *Times* Geneva correspondent from Quarten, in the canton of St. Gall. A short time ago the people of the neighbourhood noticed signs of uneasiness about the Sehnebelberg. The summit of the mountain appeared to be in a very precarious position, and it was feared that it might slip down and overwhelm the Schnebelwald, an extensive wood in the valley below. In anticipation of a possible catastrophe, great efforts were made to cut down and carry away as many trees as possible, though the men engaged in the work wrought at the peril of their lives. On Sunday fortnight, when fortunately there was nobody in the wood, a deafening report, like the firing of heavy artillery, resounded through the valley, and the mountain was hidden from view by a thick cloud of dust. When it dispersed, the Schnebelberg was seen to be shorter by a few metres, and the beautiful wood in the Murgthal has disappeared beneath a huge avalanche of stones and earth.

AT the annual meeting of the Council of the Royal School of Mines, the prizes and associateships were awarded as follows:—The Edward Forbes medal and prize of books to H. M. Platnauer. The De La Beche medal to John Greene. The Murchison medal and prize of books to H. M. Platnauer. Associates: Mining and Metallurgical Divisions—E. B. Lindon, P. W. Stuart Menteath, Ralph Scott. Mining Division—John Greene, B. Mott, H. E. Tredcroft. Metallurgical Division—R. S. Benson, J. J. Beringer, D. B. Bird, H. S. Cotton, W. Cross, W. L. Grant, G. S. Grundy, C. L. Higgins, B, McNeill, T. H. Reeks, J. Taylor. Geological Division—H. H. Hoffert, H. M. Platnauer.

THE Agricultural Society's show at Carlisle, which was opened on Monday, is said to be unusually successful, so far as the exhibits are concerned.

MR. P. H. PEPYS writes:—"It may interest some of your geological readers to know that a branch canal is now in course of being made from the Grand Junction Canal at a point near the West Drayton Station of the Great Western Railway. This cut, which runs parallel with the Great Western Railway to a point not far from the Slough station, passes through beds of river gravel and brick earth, a very interesting section of which has just been opened up by the excavators."

A SAD balloon accident has taken place at Le Mans, and may be referred to as illustrating some useful facts relating to aëronautics. A man named Petit had ascended with two balloons connected by a long rope. The smaller, which was placed above, carried his son, almost a boy; Petit being in the larger with his wife. There was not much wind, and this foolish experiment would have ended without accident if Petit had not forgotten to loosen the neck of the balloon, so that no escape was left for the gas which was gradually expanding. When the balloon arrived at an altitude of 400 to 500 metres it burst in the vicinity of the "equator," and descended with great velocity, dragging the smaller balloon. Petit, who was devoid of any scientific knowledge, supposed his son was in danger, and with true heroism he cut the rope connecting the two balloons when at 250 to 300 metres from the ground. He placed his wife on the ring and remained himself in the car. The shock was so terrible that his spinal cord was broken, and he died on the following day. His wife was very badly hurt, and though in danger, is alive. If Petit had not cut the rope by an act of unintelligent devotion he would very likely have escaped, and his son would not even have touched the ground.

WE have received the first two parts of Dr. Braithwaite's "British Moss Flora," published by the author at 303, Clapham Road. We hope to notice the work at length on its completion.

FROM Dr. Schomburgk's Report on the progress and condition of the Botanic Garden and Government Plantations of South Australia during the year 1879, we gather many interesting facts. First, with regard to the climatic changes, temperature, sunshine, &c., and their effects on vegetation in Adelaide. During the Australian autumn, winter, and spring the country was visited with the most favourable and seasonable weather on record, the influence of such a season had, of course, a wonderful effect on the agricultural and pastoral produce of the colony, the wheat crop, for instance, being one of the most abundant on record. We are told that owing to a "part of the spring months—September and October—being cool and cloudy, and showery, the roses flowered in such perfection as was never witnessed in South Australia. Flowers were seen from five to six inches in diameter. On the subject of forage plants, a subject that has occupied a good deal of attention in our colonies of late, *Cyperus esculentus*, known as the chuffa or earth almond, takes a prominent place. This plant it appears is extensively grown in the Southern States of America, where the tubers are used for feeding hogs, sheep, and poultry. These tubers are said to contain a quantity of air and sugar, and are consequently very fattening to animals fed upon them. Dr. Schomburgk also recommends the cultivation of the Nardoo plant (*Marsilea macropus*, Hook.), which, in the interior of South Australia, where the plant is common, forms a valuable nutritious forage plant. Attention is also drawn to the Tagasaste (*Cytisus proliferus*), a shrubby leguminous plant of the Canaries, the leafy branches of which have a reputation as a useful fodder. Dr. Schomburgk announces the probable early completion of the new Museum of Economic Botany in the Botanic Garden, the cases in which are arranged on the plan "adopted in the new Kensington and Kew Museums." The museum collection already numbers 2,000 specimens, and these are being constantly added to, contributions constantly arriving in very large numbers.

THE annual meeting of the Royal Society of New South Wales, Sydney, was held May 12; the number of new members elected during the year is fifty-one, making the total number of ordinary members upon the roll to date, 430. During the year the Society has elected the following gentlemen as honorary members, viz.:—Mr. George Bentham, F.R.S., C.M.G., Dr. Charles Darwin, F.R.S., Prof. Huxley, F.R.S., Prof. Owen, C.B., F.R.S., making the total number of honorary members nineteen. Mr. R. Etheridge, jun., F.G.S., has been elected a corresponding member of the Society. Financially the Society's affairs are in a satisfactory condition. At the Council meeting held on April 28 it was unanimously resolved to award the Clarke memorial medal for 1878 to Prof. Owen; for the year 1879 to Mr. G. Bentham; and for 1880 to Prof. Huxley, for their valuable contributions to the knowledge of the palæontology, botany, and natural history respectively of Australia. During the past year the Society has received 664 volumes and pamphlets as donations, against which it has distributed 523 volumes and pamphlets. The honorary secretaries are Prof. Liversidge and Dr. Leibius. At this meeting Sir Joseph Dalton Hooker was elected an honorary member.

METEOROLOGICAL NOTES

PROF. NIPHER has sent us the *Missouri Weather Service Report* for April, 1880, and the *Daily Times* of St. Louis of May 4, in both of which publications interesting and valuable details are given of the tornadoes which desolated Marshfield, and were attended with disastrous results at other places in their route through the south-west of the State of Missouri. The details were collected with great labour and care, Professors Nipher and Shepard, Judge Barker, and Messrs. Smith and Kribben having spent four days in the saddle, from the 22nd to the 26th, in collecting the evidence of eye-witnesses and examining the effects produced by the tornado. The Marshfield tornado was one of three whirlwinds which occurred in this part of Missouri, separated only by short intervals of time. The most violent of these began near the south-west corner of the state, and thence swept up the Finley Creek Valley. The width of its path exceeded a mile at points, and over this breadth even oak saplings were torn out by the roots, and either thrown out of its path or laid down in rows in the lee of ridges. The average width of its destructive path for a distance of 100 miles was 3,000 feet, thus covering an area of 60 square miles. The Marshfield tornado originated about half an hour earlier and at a point a little to northward, slightly diverging from the path pursued by the previous tornado. Though less violent, considered as a whole, it proved much more destructive to life, no fewer than sixty persons being killed in the town of Marshfield, that town itself being wholly destroyed. The destructive path of this tornado was about 45 miles in length, and as its average breadth was about 1,500 feet, it covered an area of 13 square miles. This storm